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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/613,446	07/03/2003	Shiva Prakash	061450/0304606 (FID-101-D	6564

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EXAMINER	
RAEVIS, ROBERT R	
ART UNIT	**PAPER NUMBER**
2856	

DATE MAILED: 09/30/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/613,446	PRAKASH, SHIVA	
	Examiner	Art Unit	
	Robert R. Raevis	2856	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-23* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1,7,19 and 20* is/are rejected.

7)☒ Claim(s) *2-6,8-18 and 21-23* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *7-3-03*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 1,7,19,20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kuroda et al in view of McLean, II et al in view of Daniels et al.

Kuroda et al teach a method to test, including: providing a contact material 101 on a substrate; providing a probe 104 having a radius of curvature; applying a controlled "contact force" (col. 4, line 64) to the contact material 101 to measure surface profile. Kuroda employs circuitry 101,111,106 to provide for a measure of deflection.

Kuroda does not refer to use of a second film on the probe, and does not reefer to a chuck.

As to claim 1, it would have been obvious to employ a second film on the probe because McLean, II et al teach (col. 4, lines 5-10) use of a film on a probe to increase the useful life of an AFM tip. It would have been obvious to employ a chuck to hold the material under test because Daniels et al teach (col. 5, lines 55-65) use of a chuck 4 to securely support a sample under test.

As to claim 7, note McLean's 10 micron teaching (col. 2, line 15).

As to clam 19, note Kuroda's 30 micron teaching (col. 4, line 9).

As to claim 20, it is known to apply a small force to the sample of interest to assure contact, but now damage the probe.

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Henderson et al '768 teach (col. 8, lines 59+) use of an atomic force microscope to measure adhesive force between two elements, but do not suggest measuring adhesion between a pair of thin films, and do suggest measuring contact resistance between those same two films.

Green et al '226 teach (col. 1, lines 27-45) use of an atomic force microscope to measure adhesion properties, but do not suggest measuring adhesion between a pair of thin films, and do suggest measuring contact resistance between those same two films.

De Wolf et al ("Lateral and vertical ...conducting tips") teach use of an AFM with a "sharp" (p. 1699, right-hand column, last paragraph) to measure electrical properties, but do not employ a "rounded end piece" (Applicant's claim 1), and arguably do not teach use of films.

Hellemans et al teach use of an ARM with sharp tip 3 to measure electrical properties while applying a "calibrated" (col. 4, line 48) "force" (col. 4, line 46), but does not employ a "rounded end piece" (Applicant's claim 1), and arguably does not teach use of films.

Khandros et al teach a conducting probe with both a film and a rounded surface, but the probe is not related to an atomic force microscope.

Both Kanamaru et al (col. 1, lines 45-55) and Maekawa et al (col. 5, lines 57+, and continuing on to col. 6, line 17) teach use of spherically tipped probes, but the probes are not related to an atomic force microscope.

DeWold et al relate (col. 1, lines 30-45) AFM to measuring resistance.

Meuris et al illustrate (Figure 3) how an AFM is used to measure resistance, but the tip does not employ a "rounded" end as called for in Applicant's claim 1.

Claims 2-6,8-18,21-23 objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Robert R. Raevis whose telephone number is 571-272-2204. The examiner can normally be reached on Monday to Friday from 7am to 4pm. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

RRR

RAEVIS